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ABSTRACT

The project reported on is designed to develop a model program of infant and child day care in a municipal setting. The development of the program is discussed under the following topics: (1) physical caregiving routines; (2) guided learning through play; (3) supervising children in free play; (4) staff guidance and communication: inservice training; (5) parent guidance; (6) written materials; (7) toys and equipment; (8) experimental week; (9) family life education pilot project; (10) video recording apparatus; (11) outside consultation; (12) developmental learning projects--information concept learning; cognitive style, attribute concept learning, language learning, graduate student seminar projects; and (13) development of specialized program-related measures. The following issues related to day care that emerged from the work on program development are discussed: (1) quality day care vs babysitting; (2) staff rotation vs children's needs for stability of adult-child relations; (3) inservice training of infant-child care staff; (4) conflicting practices between home and day care; and (5) quantity and quality of physical space. References are provided, as are appendices concerning: (1) parent guidance report; (2) outline of topics for family life education program; (3) information concept project; (4) graduate student seminar projects; (5) sample chart of infant stimulation frequency curves; and (6) developmental age groups and teacher-child ratios. (KM)

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THE DEVELOPMENT OF A PROTOTYPE INFANT, PRESCHOOL AND CHILD DAY CARE CENTER IN METROPOLITAN TORONTO

Year I Progress Report: Program Development

by

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I. Introduction

This report for Year I of the longitudinal investigation on day care is divided into two sections of which only the first section on Program Development will be covered at this time. The second component, a report on the first year findings on infant development, will be completed in the fall (after the summer interim when the research does not operate) in order to encompass the end-of-year testing to be completed in June.

This report on program development is concerned with two things, (1) summarizing the year's work, and (2) discussing certain issues emerging from our work on program development that have important implications for establishing quality day care not only at the Woodbine Center, but in any setting in a manner adequate to ensure the optimal socio-emotional and intellectual development of children.

II. Program Development for Year I

A. Aims

This is a longitudinal investigation on research and development at a municipal day care center of Metropolitan Toronto (Fowler, 1971a). On the one hand, the project is designed to develop a model program of infant and child day care in a municipal setting. On the other hand, there is a continuing investigation of the effects of program upon the development of available samples of participating children from six months of age over the first several years of life.

Because the child spends so many hours every weekday in day care, design of a model program entails responsibility for identifying and establishing reasonable control over the entire range of caregiving and stimulation conditions that may affect each child's development in every sphere. We are concerned particularly with social and emotional development, intellectual development, perceptual and motor development, and general health. Because of the large

interaction effects between day care and home, moreover, we are also vitally concerned with tracing, influencing, and being influenced by child-rearing methods employed by parents in the home as well as expanding opportunities for relations between parents and day care staff. Program development entails, above all, interest, participation and development of day care staff as well as the preparation of program materials and equipment. Methods, guides and materials developed over the course of the past year to realize these aims, including communications and materials with and for parents, are the subject of this spring report. Major emphasis will be given to developments occurring since the Preliminary Progress Report (Fowler, 1971b) was issued in December, 1971.

B. General Program Development

Through the combined efforts and high cooperation of the Woodbine day care staff and the project research staff, program and staff development have continued well following the same basic format outlined in the Preliminary Progress Report. Intensive work has continued in all three major spheres of activity, namely, physical caregiving in eating, dressing and other routines, guided play learning and free play activities. All of our joint efforts the first year have been devoted to the two infant age levels, the twelve babies (6 to 18 months) and the twelve toddlers (18 to 30 months)[1]. The research contribution to program development in the nursery school age ranges (31 to 60 months) has been necessarily deferred until Year II and beyond, in proportion to the staff resources available and the longitudinal design necessitating starting with infants. The low adult-child ratios and amount of staff rotation in the toddler group have also restricted program development in the toddler group, problems which will be discussed in the later section on Issues.

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1. Program Development was carried out for all infants in each group, regardless of their sample status. Although sampling and measurement are discussed in the fall report, basic age and family sample characteristics of children seen by parent worker are listed.

The developmental learning program principles we have implemented to varying degrees of effectiveness may be defined as follows:

Physical Caregiving Routines

The first stress has been on giving care with warmth, flexibility and social perceptiveness toward each child's needs and styles. Emotional rapport is assumed to arise through familiarity and understanding. Sensitiveness and gentleness toward infants seems to develop in staff as they observe and find reward in the increased responsiveness of children to these approaches.

Responsiveness to needs means maintaining a developmental perspective. Though babies are highly dependent, physically and psychologically, the direction of development is toward dynamic systems of autonomy and cooperation, processes, which to be learned, must be nourished in the earliest months of life. The heart of our approach to caregiving has been interacting with infants, fostering and gradually extending the amount of active participation and cooperation in performing the tasks, stimulating skill learning as well as attitudes and expectations of self-reliance and responsibility toward others. The caregiver's goal is both to get the task done and help the infant develop by involving him in the process.

The recurrence of routines week after week makes them at once fertile soil either for boredom and conflict, or situations for learning language and ideas. Day care staff have tried to talk freely about activity, describing the actions and things used in the routines, the child himself, and bring in other objects for the baby to handle, pictures to look at and all to be presented often with games, songs and rhymes.

Guided Learning Through Play

The same set of principles apply equally to guiding children in any learning and supervisory situation. Our stress in guided learning has been upon positive attitudes and awareness of individual need, autonomy and cooperation, and the development of language and cognitive skills.

In more specific terms, the form of relationship between adult and child in a guided learning activity has incorporated the following features:

1. Learning through play. The child's natural interest in exploration, in employing imagination, and in using toys for plays and games is allowed and encouraged to take free rein. Stories, movement, means-end, hiding, contrast, targeting, and building activities are extensively encouraged and used to stimulate learning and interest.
2. Interaction. Both the child and the adult need continually active roles, the child through his intrinsic curiosity about toys and objects, and the adult through feeding into the situation new objects and activities timed and placed in the child's perceptual field in a manner to sustain his interest and foster learning without intruding on his sense of purpose.
3. Developmental orientation. The young child operates primarily in the literal and immediate modes of perceptual motor action, necessitating the presentation of learning about things to include demonstrations and opportunities for the child to see and handle things first hand.
4. Language and abstraction. Although sensory motor, we aim gradually to lead the child to develop broader and more generalized understanding, goals that require plentiful use of language to represent phenomena. The language must be simple and precisely related to particular relations and sequences we try to draw the child's attention to.
5. Order. Simple puzzles and other things with one or two parts come before complex ones with more parts. We try to keep some track of what has gone before for each child and what he is ready to try out that is new and more difficult.
6. Variety and Fun. The play we stimulate to supplement the children's own play activity to help them learn is frequently and imaginatively varied - using different examples, stories and objects, different containers and tools

to keep the play going, to keep the learning fun and to broaden their understanding.

7. Inquiry and correction. Although many things and activities have culturally conventional labels or follow physical laws, we try to approach activity as involving problems to be figured and as things that can be put together in different ways. We are more concerned with infants learning how to solve problems and create things than that he gets the "right" answer. If a label or a certain way of doing something (e.g., rolling a car on its wheels) is often also important, we show the child again at another point, or in another example, rather than implying failure by telling him he's wrong.
8. Individualizing learning in small groups. Even babies less than a year old are brought together in pairs and three's to enjoy and be stimulated to learn and work together. First relations are limited to simple awareness of presence and handing or receiving a toy, usually on suggestion, but relations soon multiply to include taking turns and working different parts of the same task and, by 3 to 4 years (in groups of 3 to 5), playing the roles of teacher in simpler activities.

Supervising Children in Free Play

Similar to the principles valued in all adult-child relations and learning situations, developmental and play orientations must take account of the singular value of free play for children. Play for the child is his way of exploring and experimenting on his own, and developing his mind and imagination through trying out in pretend form the social actions and tasks he has glimpsed older children and adults perform (usually in guided learning situations).

Persistence, creativity, learning and constructive cooperation in play thrive best in social and physical environments brought about in part through the following forms of teacher activity our day care staff has tried to foster:

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1. Selecting and arranging toys and equipment by type and developmental levels and distributing them into functional and spacious areas, attractively displayed and convenient of access.
2. Regularly rearranging and rotating many of the toys to provide novelty and give varied experience, especially for specialized puzzles, learning toys, books and props for occupational roles (e.g., office furniture, doctors' and other tools of the various trades).
3. Planning staff supervisory roles to provide for a balance between regulation of the total group of children in harmony and attention to the individual needs of children.
4. Controlling social density and traffic flow.
5. Keeping track of children's play patterns and interests to encourage experience in all forms of play as well as the development of specialized skills and interests
6. Maintaining a balance between stimulating children's play and regulating children's conflicts, on the one hand, and encouraging children to master and cooperate on their own, on the other, by making guidance timely, brief, infrequent and in a manner to suggest and support without doing for children.
7. Arranging and guiding toys, social role props, conditions, play groups, etc., in ways to foster diversity of experience for both girls and boys and children of all ethnic backgrounds; to minimize sex, occupational and authority role and cultural stereotypes.

Specific developments implemented and/or completed since the last report may be described as follows:

1. Staff Guidance and Communication: Inservice Training

Although staff workshops have been held over much of the year from which a series of written statements on various topics have been accumulated and distributed to staff and elsewhere, informal forms of communication have been more widely extended. Some of the joint research/day care meetings have been devoted

to informal discussion around problems and topics rather than prepared presentations by the principle investigator. Ms. Eva Biderman has developed close and continuing relations with day care staff members individually, meeting them numerous times each week to discuss problems and needs of the program, staff and the children. Other members of the research staff in their various roles talk frequently about the development of the children with members of the day care staff.

On a more formal level, there has been instituted a regular Wednesday baby staff meeting, which Ms. Biderman attends, and which serves as a forum for the introduction and development of new ideas or discussion of problems of program implementation and the children's development.

Periodic demonstrations of particular techniques, approaches or programs have been provided from time to time by the principle investigator and members of the research and day care staff during the fall period. Staff-child caregiving ratios have continued at about the same level for infants (1 : 2 for the babies from 6 to 18 months of age), but during some periods have been improved from 1 : 12 to 1 : 6 for the toddler group (approximately 18 to 30 months). Certain critical problems of program and staff development associated with limited space, staff-child ratios and staff time and scheduling will be discussed in the second major section of this report on problems and issues.

Finally, permission has been given for the day care staff to develop stimulation programs through excursions. Infants and toddlers are taken on excursions in walks and in baby carriages around the neighbourhood, particularly during the fine spring weather. Groups have travelled through residential areas, to supermarkets and other stores in the interests of providing infants with a wide range of guided experience in concepts and activities local to their community.

Although the effects of program upon infant development must await detailed data analysis to be presented in the fall report, the combined impressions of the research and day care staff and the principle investigator are that most of

the children are developing very adequately both intellectually and socio-emotionally. They appear reasonably independent and cooperative, and many of them display considerable curiosity, interest in learning, persistence and a diversity of language, problem-solving and creative skills regularly in their play.

2. Parent Guidance

The parent guidance program is summarized in outline form by the parent guidance worker, Ms. Marsha Cressy, as Appendix A. Included in this report is a record of home visits, average number of visits per child, etc. as Table 1. There is also an outline of topics discussed with families, special projects and programs initiated, (e.g., a toy and book library), problems of families and parent-staff relations. As may be seen by this report, there has been a regular and comprehensive approach to communicating with and guiding parents over the course of the year, using a basic parent guide "Cognitive Orientations toward Child Rearing"(Fowler, 1968). On the one hand, the main focus of communications has been on helping parents to cope and develop in problems of child-rearing, both in interpersonal relations and in intellectual learning. While discussions have been carried out using the conceptual framework of the principle investigator as a point of departure, the emphasis is upon building on the strengths and styles of the parents themselves, rather than forcing them into an over-defined mold. On the other hand, as the parent guidance worker report also indicates, a great deal of effort is necessarily expended on the many problems of family living that directly and indirectly have consequences for the children's development. There is no question but that the work with parents has been an indispensable mainstay of the entire project. The effects of parent guidance will be seen in correlations between measures we are taking of parent and home characteristics and the children's development.

Family and project problems mentioned by the parent guidance worker will be discussed in the second major section of this report on issues and implications.

3. Experimental Projects and Special Developments for General Program

a. Written Materials

Three program guides have been developed this year, one of which has been completed and disseminated to practitioners throughout the province and elsewhere. The complete guide is a series of illustrated one-page statements on physical caregiving routines with babies as developed in the course of the project by the principle investigator and Ms. Biderman, the program developer. This guide is entitled, "Developmental Methods for Physical Care Routines with Infants", (Fowler and Biderman, 1972a). There is already considerable interest and demand for this guide on the part of various day care and training agencies responsible directly or indirectly for the care of young children (e.g., nurses, social work and day care teacher training programs).

b. Toys and Equipment

Many educational toys have been selected by the day care and research staffs (a substantial portion from the research budget), much of it for the youngest (6 to 18 months) infant group. Shape and colour sorting and matching toys, size learning toys, several sets of blocks to foster the development of spatial concepts and creative construction processes, a wide assortment of minature vehicles, both realistic and schematic (often combining fine motor and shape matching skills), plasticine, books, records, means-end problem toys, pull toys, rolling rattles, and miscellaneous other toys. One of the continuing problems in equipping infant day care is the limited selection for children under two (most designs are too complex, more appropriately graded for nursery school ages). Because of this problem some simple homemade toys have been developed (see above), including a suspended string-pull toy for infants under 8 months to foster the development of distal means-end activities.

Specialized tables and chairs have been designed by the principle investigator, the tables constructed by the Metro Day Care Services and the chairs are currently under construction under contract to the research group. Both types of items are designed to fit the physical stature of infants of different ages,

more appropriately than commercially available equipment. They are also designed to facilitate adult care and stimulation of children in learning and eating situations with minimum interference with the child's autonomy.

Climbing apparatus for infants designed by the principle investigator will be constructed and tested in the fall.

Toy shelves to fit the small size of the infant room have been purchased. Carpeting has been put down over certain sections of the main infant playroom because of its value in providing "coziness" and tactile pleasure to infants during floor play and crawling. A small chest of drawers for string toys has been supplied to the smaller playroom, which, along with a shelf soon to be installed, provide ease of access for teachers in setting up guided play activities with infants.

A guide on "Methods of Supervising Children in Free Play Activities" has been completed in draft form (Fowler and Biderman, 1972b) and is being used by our own Woodbine day care staff. The other guide, "A Guide to Home Made Toys" (Fowler and Cressy, 1972), has been distributed in tentative form for use of our own staff and parent groups at a recent Parent Night.

c. Experimental Week

During an entire week this past spring the research staff collaborated with the day care staff in running the infant and toddler programs on an experimental basis. Over a series of planning, discussion and evaluation sessions a number of different features to operate the day care program were developed, then tried out during the experimental week. In particular, the following features were incorporated:

(1) staff ratios were greatly increased by daily participation of alternating members of the research staff as caregivers;

(2) during much of each day the infant and toddler groups played and participated in the program freely together;

(3) staff members were assigned responsibility for several individual children, and also tried to work in pairs to share responsibility for following the development of their respective children over the course of the week;

(4) an attempt was made to minimize schedules and rely more on longer blocks of time for free play activity, teachers attempting to co-ordinate program and children's needs as they developed in the course of the free play activity time. Despite the necessary return to former schedules, following this week, staff practice has noticeably emphasized more flexible approaches in the regular program, within the limits of staffing available;

(5) extensive communication and cooperation among all staff, including between infant and toddlers and research staff members was stressed;

(6) to give the members of the research staff more continuing direct experience in handling children and in appreciating the problems of day care staff;

(7) a method for rating children on socio-emotional, cognitive style and interest areas was introduced with the day care staff. The purpose of the rating system is to enable teachers directly to follow the children's development systematically and to enable teachers to modify their ways of handling the children as a result of the information provided by the rating scheme.

In general, the results of the experimental week were highly positive Informal evaluation of the experimental week in discussions by the research and day care staff indicated the following outcomes:

Positive Effects

(a) Foremost among reactions was the generally high enthusiasm and cooperation among all members of the day care and research staff who participated in the experimental work week. The fact of trying out something different which the group as a whole had worked on together and of varying routines seemed to generate much good feeling. There was a consistent tendency to help one another and to ask for help when needed.

(b) On the whole the children of both groups, i.e., toddlers and younger infants, received more personal attention and participated actively and interestedly

in the new and varied situations. The level and vigour of their play was generally quite high, although there were certain problems of persistence in play to be discussed under Issues.

(c) There was perhaps somewhat more and different activities available to the children over the course of the week, particularly for toddlers. Among these were different forms of socio-dramatic play, new peer relations to explore among the different age groups, and a greater variety of instruction in creative construction play activities, (blocks, play dough, plasticine, water play, sand play, etc.) were made possible.

(d) The increase in staff ratios, particularly in the toddler group from a norm of about 1 to 12 children through many periods of the day to 1 to 4 children was certainly a factor making possible the greater variety of activities and the development of more constructive social relations and forms of play, and, of course, for greater staff enjoyment.

(e) All members of the research staff felt they benefited a great deal from working substantial blocks of time. It gave them a better appreciation of how long a workday in caring for children really is. At the same time they felt relations with the day care staff were deepened.

Problems

(a) As might be expected in any new program, particularly where schedules and routines are minimized, there were a number of snags in coordinating activities and arranging materials in the playrooms. Most of these were compensated for by the keen interest and spontaneous efforts at cooperation among staff. Should permanent arrangements of this kind be adopted, however, certain minimal pre-planning sessions could easily make possible a smooth-operating, less scheduled type of program. The real difficulty is staff ratios, a point which will be discussed under "Issues".

(b) Perhaps because of the high emphasis upon developing new activities and spontaneity in free play there was a noticeable neglect of individual play learning sessions with the children, despite the expansion of individual

attention during normal play activities. There is no reason to expect that this omission would be permanent, given a longer period for program development and definite times for preparation and planning by staff.

(c) The baby staff seemed to benefit less from the experimental week than the toddler staff. The staff ratios of the former were, if anything, slightly diluted and the orderly arrangements they have developed over the course of the year, which allow a fine balance of free play and scheduled routines, was slightly disrupted.

(d) Again, because of insufficient time for planning and preparation, there were a number of instances of younger children being frustrated when confronted with puzzles and other sensory motor toys too complex for their level of development. Provisions would have to be made for distributing toys and guiding children in activities according to more equitable developmental levels.

(e) The system of making individual staff responsible for following the development of sets of particular children did not work out well. A critical problem was the lack of free time for staff to gather the necessary information and observe their own children free from supervisory responsibilities. The lack of match between staff and children's schedules also makes this kind of monitoring difficult, despite its importance for children's development, as will also be discussed under the section on "Issues".

d. Family Life Education Pilot Project

In late May and early June a pilot project on family life education for a selected sample of Castle Frank High School students was undertaken through cooperation of the Principal, Mr. John Kileen, and the Chair person of the Physical Education Department, Ms. Rosemary Saunders of Castle Frank High School, and the Woodbine day care staff under the direction of Ms. Elizabeth Dallas, supervisor, and Ms. Sylvia Saunders, infant supervisor, and the Woodbine research staff. The project, which operated for three weeks, embraces two major components: (1) lectures and discussions on child develop-

ment and methods of infant child day care and education, and (2) supervised experience in care-giving roles in the Woodbine Day Care Center, concentrated largely in the infant and toddler age groups.

The major aims of the project were twofold: (1) to prepare high school students theoretically and practically on problems of family life related to child development and care, and (2) to supplement day care staff with additional caregivers for the purpose of providing more intensive care and education of the children than would otherwise be possible with present-day economics.

This is essentially a feasibility project to determine the possibility of instituting programs of this kind on a regular basis. A detailed outline of the objectives and procedures of the project are contained in the proposal submitted to the Department of Social Services of Metropolitan Toronto and the Toronto Board of Education (Fowler, et al, 1972). This proposal was written by Ms. Cressy and the principal investigator.

The main results of the project are as follows:

Positive Outcomes

1. An intensive serives of daily lectures, discussions and demonstrations were presented by all full-time members of the research staff including the principal investigator over a three-week period. Ms. Biderman coordinated the activities for students and prepared and taught half the sessions. The curriculum topic outline is enclosed as Appendix B. The six participating students have been a lively group attentive to lectures and most of them have actively contributed to the discussions.
2. The day care staff report students learned quickly, were responsive to staff demands and children's needs and made a major contribution to the program. Their understanding and flexibility in responding to individual differences and situations has been evident, not only in caring for children but in the quality of their contributions to the discussion sessions.

3. Members of both the day care and research staffs worked hard and effectively in carrying out their respective roles to develop a profitable experience for the students from Castle Frank. There was abundant evidence of student interest and enthusiasm as well as obvious development in their understanding in both aspects of the program.
4. It appears that the time and effort expended for day care staff supervision were very well balanced by the gains realized in additional staffing to provide quality care for infants and the apparent development of the high school students.

Problems

1. The principle problem in establishing a continuing program of this kind is the cost of academic teaching time. The present pilot project was operated by the research staff taking time from their regular research and development activities. While the staff is very enthusiastic about the results, the project could not continue to bear these costs over a prolonged period. It is estimated, however, that no more than one half-time academic role for someone trained at the B.A.-M.A. level in child development - early childhood education would be sufficient to perform these services on a regular basis. The present research staff could provide some continuing supplementary guidance and consultation service.
2. Despite student enthusiasm there was a minor problem of absenteeism, apparently mainly due to conflicting schedules and family demands that kept an occasional student home (e.g., for babysitting). It is estimated that a more permanent regular program of this type could easily deal with attendance problems, given the obvious benefits to students.
3. The brevity of the pilot program limited the time for student development and caregiving assistance to day care staff. There was also a problem of time conflict for students between the family life education program and

their other courses. If established on a continuing basis, course programs could as an alternative, continue for 6 to 12 week periods, depending on other factors, in order to reduce schedule conflicts and provide training for students in greater depth and to develop more continuity of staffing for day care. Under these circumstances, 2 or 3 groups of 5 students each might assist in day care two to three days per week, to reduce interference with other subject programs for the students and increase the number of students attending.

e. Video Recording Apparatus

The project has acquired a television tape recording apparatus now in the process of being experimented with. Immediate plans call for its use in two ways: (1) to tape research staff members in demonstrations of guided learning activities with infants. Advantages of the apparatus over live demonstrations are the availability of tapes for repeated reviewing and scheduling of viewing according to the convenience of the viewer. (2) The videocorder will also be used for self-evaluations for day care staff through the feedback mechanism taped sessions provide.

Long-range plans include taping observations of children in play and other activities for research purposes. Spatial limitations of the day care center, however, may partially restrict our use of the apparatus. The apparatus is not sufficiently portable to permit regular transport between the playrooms and storage area in the research office. Permanent storage in the vicinity of the infant playrooms has been devised to allow easier and more frequent use of the apparatus for observation purposes.

f. Outside Consultation

The principle investigator and members of the research staff have attended a number of conferences over the course of the year in which information about the longitudinal project was presented.

Various members of the research staff participated in the following

conferences:

- Conference in Research and Teaching of Infant Development, Merrill-Palmer Institute, Detroit, Michigan, February 10-12, 1972.
- Conference on "Child Development: The Importance of Infancy", Buffalo, New York, March 24, 1972.
- Workshop on the Home Tutoring Project, Ottawa, Dr. Thomas Ryan, principle investigator, May 2, 1972. In addition, several small conferences with members of Dr. Ryan's Home Tutoring Project have taken place for the purpose of training and advising his staff on testing and measurement.

Conferences participated in by the principle investigator include:

- Committee on Research in Infancy, Washington, D.C., April 14-16, 1972.
- Research Conference on the Effects of Blindness and Other Impairments in Early Development, University of Michigan, Ann Arbor, Michigan, April 24 and 25, 1972 (discussant on paper by E. Eidelson and S. Fraiberg "Sensory Deficit in Motor Development in Infants Blind from Birth").
- Workshop on Studies in Socio-emotional Development in Infancy, Invited Research Conference, University of Florida, Gainsville, Florida, May 18-20, 1972.
- Keynote address to be delivered at an Early Childhood Education Conference, October 13, 14, 1972, Moose Jaw Saskatchewan (topic: "Developmental Readiness").

In addition to participation at research and development conferences, members of the research staff, especially the parent guidance worker, Ms. Cressy, attended numerous local conferences and meetings on day care, child development, family life education and related topics, among these a conference on Training Day Care Staff sponsored by the government of Ontario, the Association of Women Electors, YWCA, Women's Liberation Campus Cooperative Community Day Care Center and many others, at various times making formal

presentations, participating in discussions and distributing written and oral information on our project.

Over the course of the year many visitors from research and community day care and other agencies have visited the project. Much information, written and oral, has been disseminated in this fashion.

During the pre-holiday period in December, the principle investigator gave a televised tape presentation involving discussion and demonstrations on children's toys and in June was interviewed for an article on the project that appeared in the Toronto Star, June 10, 1972.

C. Special Projects

1. Specific Types of Developmental Learning Projects

a. Information Concept Learning

An experimental project on learning features and functions of birds has been integrated into the general day care program on all infants attending the program from 8 to 30 months of age. The aims of the project have been to identify and test the potentials for learning information concepts of young children, with particular reference to relations between concept complexity and developmental level. The project is also designed to experiment with the feasibility and establish the conditions under which concept learning approaches can be regularly introduced into day care programs. The program has been generally successful from the point of view of children's learning and program implementation in day care, with certain limitations to be discussed later in the section on Issues. While no formal results will be available until the project is completed and data analyzed later this year, a summary of the project by Mr. Nasim Khan (1972), who is carrying out the investigation as a part of his doctoral dissertation, is enclosed as Appendix C.

b. Cognitive Style

As an adjunct to the assessment of the effects of our general learning program upon infant development, two measures of cognitive style have been

administered to both the infant and toddler group on two occasions over the course of the year. There are two measures of style involved: (1) an analytic style which is concerned with the way children observe details in cognitive exploration of their environment in play. (2) The second is an assessment of integrated style, concerned with how children relate objects and parts of objects to one another to make meaningful mental constructs of reality. Both of these styles are considered basic and useful forms of gathering information about the world and solving problems. The cognitive development of children in these styles is being compared with children developing in other environments. This project is being carried out by Mr. Don Wale as a Master's thesis at OISE under the supervision of the principle investigator (Wale, 1972).

c. Attribute Concept Learning Projects

Two projects in this category are under development. In one of these the principle investigator and the program development researcher, Ms. Biderman, have designed and developed a series of geometric forms (circles, squares, triangles and rectangles), which also vary in colour (Fowler and Biderman, 1972c). The apparatus has been set up in the form of a kit and is now being tried out in the playrooms in the regular play-learning sessions with children. A monitoring system (record chart) has been provided for tracing the progress of each child's development in concept learning of geometric and colour concepts. Periodic assessments will also be made on children's generalization of these concepts with other materials.

A formboard apparatus designed to provide experience with geometric (circles, squares, triangles), colour (blue and orange), area (small and large), height (tall, medium and short), and number (one to five) is also under development (Fowler, 1969). Currently the apparatus has been found to need modification because of lack of precision in the original manufacture of the circles and squares, which tend to fit indisciminately in the insets. The apparatus will be

modified as soon as a suitable inexpensive resource can be located.

d. Language Learning

In addition to the general program of language stimulation permeating the program, two specialized projects on language learning are under development. (1) A Play Approach to Inducing the Acquisition of Language Syntax (subject-predicate-object relations sequenced in a learning program) which is being carried out jointly by the principle investigator and the program developer, Ms. Biderman (Fowler and Biderman, 1971). Over the past several months five infants, initially from 10 to 11 months of age have been exposed weekly to several play learning sessions, with Ms. Biderman as teacher. The program to date has concentrated on learning subject-predicate relations alone. The approach involves coordination in play of language statements with physical manipulation of dolls to represent the language statements.

While no formal analysis is yet available, it would appear that early specialized experience focused on language-cognitive rule-learning does not produce specific developmental gains in language concepts any better than a good general program of cognitive and language stimulation embracing a broad range of language and cognitive rule experiences. None of the children in the project, the oldest of which has attained 15 months of age, have demonstrated any reliable gains in language comprehension or speech in any of the particular rules presented. There is, however, a definite problem of measurement regularly appearing in this and other projects. Infants under 18 months of age are sometimes seen to display competence in discriminating objects in response to language cues (words) in ordinary play and other daily activities. When asked to perform on demand in a learning task or play situation, however, they seldom perform until past 18 months of age or so. The problem appears to be related to the infants' difficulties in learning cognitive rules for performing tasks on demand and out of context of familiar situations. They tend instead to respond on a preference

basis. Although older infants showed signs of word learning at termination, it is also estimated that the weekly session rate (2.8) was too low to induce rule learning. Further work is projected with different age groups under different conditions in the fall.

(2) Language Concept Learning Apparatus

An alternative solution to the problem of stimulating children in language development in play is through a language learning apparatus now nearing completion and probably ready for experimentation next fall (Fowler, 1970b). The apparatus is designed to use language inputs from a tape recording device to guide an infant's actions to open a door to retrieve a trinket. The infant is aroused through visual stimulus displays of common objects (e.g., cow, horse, book) or pictures, labelled in the tape recorded sequences. The task involves intrinsic motivation since it is modelled after certain means-end activities intrinsic to many sensory motor, problem-solving activities infants exhibit spontaneously in play. Reports on prior experimentation with trial models of the apparatus are available in previous progress reports on the demonstration Care and Infant Education program carried out in collaboration with Canadian Mothercraft Society (e.g., Fowler, 1972a; Fowler, et al, 1971). In general, difficulties in reliability of operating the apparatus were found necessitating the design of a more precise model of the apparatus.

e. Graduate Student Seminar Projects

Two doctoral students attending the early cognitive learning and development seminar of the principle investigator at OISE carried out research projects with children in attendance at the Woodbine Day Care Center. One of these projects by Robert Bracewell assesses the effects of colour coding upon size concept learning with standard educational materials for infants and pre-school children. The other project by Frank McIntyre carried out an assessment of the relation between the complexity of language structure and the development of language competence in a sentence repetition task with young children. A

description of these studies and the accompanying findings are included as Appendix D.

2. The Development of Specialized Program-Related Measures

a. Systems for Monitoring Developmental Learning

Three systems for tracking the learning of individual children over time are under development in the program.

(i) Monitoring of Play Learning Sessions

Early in the program year a plan, under supervision of the program researcher, Ms. Biderman, was introduced in collaboration with the day care staff for day care teachers to record the play activity sessions carried out with the children in day care. The development of the system progressed through several stages: (1) teachers recorded on a daily wall-chart prepared for the purpose any play learning activity, labelled according to their own practice. (2) An empirical classification based on the types of toys and teacher usage was developed and a code provided for ease in recording. The code combined some cognitive categories (e.g., social role and creative activities, sensory motor puzzles, vehicles) as well as descriptive categories (e.g., stacking and nesting toys). (3) At the initiative of the infant supervisor, Ms. Sylvia Saunders, and the baby staff, the teachers began to record comments on the children's progress.

This monitoring system has continued in much the same form throughout the entire year. Infants are usually tutored in play interaction sessions individually but sometimes in two's and three's. The activities are carried out as convenient according to the schedules of the children and the staff by any staff member at her initiative as time allows. The sessions vary from three to ten minutes or so in length and typically are held in a separate activity room around a small table where a wide variety of educational toys and materials are arranged in a convenient cabinet. Sometimes sessions are held in the larger free play activity room in a separate area.

The major purpose of the system has been to assemble time blocks of information on children's exposure to guided learning. Graphs on individual children are prepared according to frequency of learning sessions and types of activity. In this manner teachers get a graphic portrayal of the amount of participation and general progress of children by types of activity. Comparisons are made showing children receiving high as well as low amounts of stimulation in any category in order to provide positive as well as corrective reinforcement for the teaching staff. A sample chart of this kind is shown in Appendix E. In addition to its monitoring function for children and program and its feedback value for teaching staff, this information will serve as a pool of data to correlate with developmental outcomes of children on a variety of cognitive and socio-emotional assessments made in the project.

(ii) Developmental Monitoring Profile

This is a system for rating children on 7-point scales on a series of traits concerned with cognitive and socio-emotional development. The system has been developed over the past few months by the principle investigator in collaboration with evaluation staff, namely, Ms. Cheryl Morrow, Ms. Shirley Bellamy and Ms. Adele Shapiro (1972a). The method permits observers to record ratings directly on a grid to yield a profile of children's socio-emotional and cognitive competencies in the areas concerned.

The scale has been so far tested on a preliminary basis by teaching and research staff, with apparent face validity and considerable inter-rater agreement. Quantitative assessment of reliability is in progress. The scales are also being employed in the follow-up study of children participating in day care in our earlier project (Demonstration Program in Infant Care and

Education, carried out by the principle investigator in collaboration with Canadian Mothercraft Society (Fowler, 1972a; Fowler, et al, 1971). This monitoring scheme will be used regularly and periodically to permit teachers to identify patterns of strength and weakness in socio-emotional and cognitive processing in children and modify their approach to handling children as needed. The major categories of development concerned are socio-emotional functioning, with the object world and with the social world of peers and adults, both male and female, cognitive styles, motivations, and interest areas.

It is anticipated that later work on this monitoring system may incorporate scaling for levels of developmental complexity.

(iii) Monitoring of Cognitive Competence Development

A comprehensive scheme for monitoring the development of cognitive competence in children from early infancy to school age, derived from a variety of test and research sources, has been developed in schematic form by the principle investigator (Fowler, Morrow, Bellamy and Shapiro, 1972b). The present plan includes such categories as physical attributes of object structures, dimensional and spatial relations, part-whole relations, group and abstract classifications, and physical processes, cognitive processes (including language, problem-solving, memory and creative processes), perceptual motor skills, socio-physical concepts and information concepts. This is viewed as a comprehensive system requiring extensive empirical development over several years. At the present time, the evaluation staff is sampling and exploring selected areas (e.g., colour concepts).

When completed, the system is intended to provide indices of cognitive competence along developmental sequences for any child as a means of continuous guiding of individualized learning programs. It is hoped that a short as well as a long form of the instrument can be constructed.

b. Environmental Standards Scales

There is currently in preparation by the principle investigator

in collaboration with the program developer, Ms. Biderman, and the parent guidance worker, Ms. Cressy, a series of scales intended to provide information on the quality of any early childhood education center or nursery school (Fowler, Biderman and Cressy, 1972). A comprehensive set of trial items has been prepared by the principle investigator. The scales are organized in terms of categories defining standards in the socio-emotional, cognitive and physical environment for infant and preschool child day care centers. The scales may be used by any center, nursery school, teacher, parent or community agency to determine program quality. The scales are quite flexible in that they can furnish ratings information on overall quality, on areas of strength and weakness, (e.g., social vs toy environment), or on specific points of strength and weakness (e.g., arrangement of playground apparatus or specific teacher characteristics).

Preliminary evaluation trials at the Woodbine Center indicate the need for a numerous item revisions, reduction in the number of items because of the length of the total scales, and certain problems of how to gain precise information without devoting excessive period to acquiring detailed familiarity with the characteristics of a particular program. One solution under consideration is the design of two versions of the scales, a long and a short form, the former to be employed for research and self-evaluation for upgrading purposes by teachers or parents highly familiar with a school environment, and the latter to be employed as a tentative indexing system where restrictions on time and access to program make a short form more appropriate. These scales should be ready some time next year.

PART II: Issues and Perspectives[1]

Issue No. 1 - Quality Day Care vs Babysitting

Any organization which assumes major responsibility for a child's care must ensure that levels of care are adequate to the child's potential for development in all areas.

Problem:

The difficulty of providing quality day care is linked to the high cost of tending to the multiple needs of young children over prolonged periods. The costs of operating group and other forms of day care services for infants and young children are variously estimated to range from less than 20 to greater than 60 dollars per week, depending upon the number and quality of staff and other resources provided per child (Fowler, 1970a; D.C.D.C.A., 1968; A.E.C.E., Ontario, 1972). The critical expense is staffing cost. Centers providing care within the lower cost ranges generally operate with adult-child ratios of 1 to 5 or less and often with less than qualified personnel. Centers providing care at costs in the upper ranges (e.g., $50-$60 or more per child per week) are generally staffed with adult-child ratios of 1 to 3 or more for children under two and personnel are usually trained in child care and development and/or early childhood education, or are participating in intensive inservice training programs. (Fowler, et al, 1971; Fowler, 1972a; Stevenson and Fitzgerald, 1971.)

Guidelines established by the principle investigator and staff in a previous three-year demonstration program on infant care and education (Fowler, 1972a; Fowler, et al, 1971) indicated the following ratios necessary to realize quality care and education programs with the age groups indicated:

Age Range	On-Floor Adult-Child Ratio
0 - 12 months	1 : 2
13 - 21 months	1 : 3
22 - 30 months	1 : 4

[1] This report makes no systematic comment on program and staff for children beyond the toddler age, since the research strategy has required prior attention to the infant levels. Attention to nursery age groups (3 to 5 years) will follow as the research

An outline of the rationale for these ratios is contained in Appendix F.

Care adequate to meet the multiple needs of young children requires systematic and continuing attention to each child in every aspect of his functioning and in all types of activities. The high physical and psychological dependency of children over the first two to three years of life, especially during the first year, places a heavy demand for physically servicing and sensitively socializing children in the developmental routines of eating, sleeping, dressing and undressing, diaper changing and toilet training, and even moving from situation to situation. Detailed supervision of little ones in free play requires many hands to arrange and sustain physical and social environments conducive to creative learning and problem-solving in play, as well as maximizing cooperative interaction. Opportunities for regular and frequent interaction with adults in individual and small group play sessions cannot be maintained without the caretaker ratios defined above. Moreover, throughout the day in each of the child's interactions, unless there is plentiful availability of adults to interrelate with children warmly and intelligently, there will not be the degree of emotional support and language and cognitive stimulation essential to foster each child's development.

At the Woodbine Center, the formal adult-child ratios for infants established this year of 1 : 2 for babies (6 - 18 months) and 1 : 6 for toddlers (18 - 30 months) are moderately adequate for the babies but only minimal for the toddlers. The reason for these limitations are to be found in three things: (1) these are paper rather than on-the-floor ratios. They provide for the total staff, <u>not the actual ratios</u> of adults to children available in the playroom and caregiving activities. (2) The length of the caregiver's day (8 hours) is far too long for anyone to sustain the psychological energy and enthusiasm needed to nurture and stimulate young children at quality levels. (3) If care-

giving is to be more than custodial, caregiving requires paid time each day for preparation, planning, study and reflecting upon the needs of children.

On the first point, the staff 8-hour day, minus time for lunch, coffee breaks, housekeeping and recording duties, etc., yields a total period of perhaps 6 hours to match the caregiving demands of children over a 10-11 hour day. Necessarily, staff are assigned staggered schedules that typically yield actual, on-the-floor caregiving ratios of around 1 : 4 or 5 for the babies and often 1 : 12 for the toddlers. Not infrequently ratios for the babies reach 1 : 8 or 9 in the playroom, although at others, ratios are at or close to an optimum level of 1 : 2 or 3.

On the second point, it is virtually impossible for adults to sustain the sensitivity and attention needed to deliver quality care continuously throughout the day, given the length of day in either of the two age groups. Experience in a previous project (Fowler, 1972a; Fowler, et al, 1971) suggested 4 to 5 hours of caregiving responsibility is the average maximum beyond which quality care levels tend to deteriorate.

Under point 3, whether or not the research program is operating, staff require time to put material together, to re-arrange playrooms, to organize specific activities and learning programs that can be followed over a series of sessions as well as time to get together and discuss the needs and progress of individual children. Caregiving staff should not only not be expected to plan and prepare in the course of giving care to the children, they should be discouraged from attending to major activities that tend to divert them from the attention and stimulation that young children need. Programs deteriorate, children suffer stress and even "accidents" occur (e.g., biting) when teachers' attention is distracted from their main responsibility at the time they are scheduled to supervise.

Over the course of the year we have evidence, both documented and in the form of impressions, that our childrens' development has been in some ways impeded by staffing problems. Evidence of an objective kind may be seen in the low frequency of sensory motor, play-learning and information concept learning sessions: the average number of stimulation sessions per child fell consistently below the three to five daily sessions of all types needed and were, of course, much less in any specific category. As shown in Table 1, the mean weekly rate for the period of January through May (when the program was fully operative) for all guided learning sessions was 12.3 or only 2.4 sessions per child per day.

Table 1

Mean Number of Guided Play Learning Sessions for all Categories (excluding Information Concept Project)

Babies (6 - 18 months) January - May, 1972

Category of Toy	Average Number Learning Sessions per Child per Week
Formboard, posting box, boat, cylinders	3.8
Puzzles	1.2
Stacking and nesting toys - blocks	2.0
Social role information	.5
Hammer - balls in box	.1
Hiding - peek-a-book - surprise	.5
Vehicles - car, truck, bus, train	.5
Creative	1.5
Story	2.2
Total	12.3

In information concept learning (Table 2), where at least one session per day is needed, the mean per week was 0.87 sessions per child for infants and 0.47 sessions per week for the toddlers, or a means of only 0.17 and 0.08 sessions per day per child for the respective groups!

Table 2

Mean Number of Play Sessions on Information Concept Learning from Last Week of January to First Week of June, 1972

	Babies (6-18 mos)	Toddlers (18-30 mos)	Combined
Weekly Number of Sessions	9.62	4.54	7.08
Weekly Number of Sessions per Child	0.87	0.41	0.64

This, of course, is not for want of staff willingness and effort. Indeed, the entire research staff finds it remarkable how much care and stimulation our Woodbine day care staff has been able to provide in both the infant and toddler groups under the circumstances. The toddler group especially has suffered from a failure to maintain even the 1 : 6 formal adult-child ratio established earlier in the year. As may be seen in Table 1, the toddlers received virtually no individualized or small group play learning sessions (except the larger group circle activities) during the entire year. The limited staff simply could not fit these into their schedules.

Evidence from subjective sources abound. The hyperactivity level in the toddler group, especially, childrens' upsets and conflicts that are inadequately attended, and even problems of persistence in play and tension levels among the babies (though less pronounced than among the toddlers), are cause for concern. There are children in the toddler group, for example, who have regressed

The length of sessions generally varied from three to five minutes, and occasionally up to ten minutes. The number of children in each session varied from one to three. Includes sessions taught by members of the research staff in May - June.

in toilet training, who show signs of desiring to return to the shelter of the baby group (where ratios are superior), and there are other persisting manifestations of immature behavior: all of these are indices of inadequacies in staff-child ratios. Again, it is not from staff unwillingness: staff must necessarily tend to many things, meet schedules and maintain their own psychic balance over the course of the day, tending to children's needs practically and calmly as they can be met, not as they would wish, given more hands, time and opportunity.

Perspectives:

While accumulation of our research findings will tell us more about program effects upon children's development, the evidence we have already suggests an important dilemma. Unless the staff day can be shortened in both groups in line with more reasonable energy and emotional demands upon staff and to allow one to two hours per day of reflection and planning time; and unless staff ratios can be improved in the toddler group to 1 : 3 or 4, the research program and, more important, the children's development will continue to fall below standards. Some improvement would be effected by ensuring that formal staff ratios are maintained at all times, something that has not been realized in either the infant or toddler group through a good part of the year. But both immediate and long-range perspectives on group care of young children suggest the need for more drastic and permanent solutions. If solutions cannot be found to meet caregiving ratio requirements, this fact must be faced and made known, since the impact upon not only the research but the status of group care itself may require serious re-appraisal. The burgeoning literature and virtually all the authorities on young children's development indicate how critical are the early years for children's development. If standards cannot be maintained in publicly administered group care, other alternatives should be sought.

Among possible solutions, several that come to mind are:

(1) Hiring more staff for the toddler group at Woodbine and elsewhere to provide formal ratios of 3 adults for every 12 children (1 : 4) for toddlers; similarly, hiring the additional staff (for both the toddler and infant groups) necessary to cover, for example, the early morning and late evening hours in order to shorten the regular staff's on-the-floor supervisory work day and to allow scheduling of from one to two hours per day for staff planning and preparation time.

(2) If money cannot be made available for additional hiring purposes, organizing a regular and reliable system of community volounteers to supplement the regular day care staff and meet the necessary adult-child caregiving ratios.

(3) Instituting a system of inservice training at all centers where children under 3 are in attendance to provide a dual function of staff development and supplementing caregiving ratios to meet desired standards.

(4) Establishing family life education programs in collaboration with the secondary (and possibly upper elementary) school systems throughout Metro and in all communities where infant day care is to be established (to meet the dual social need of staffing infant day care centers and preparing young people, both boys and girls, with the necessary knowledge and experience with young children to equip them for family life and community living. Such programs can easily be established at a modest cost of one family life educator teaching and monitoring student programs in several centers[2]. The students' need for direct experience with children actually frees staff time for planning, preparation, additional supervision, and more enriched care and stimulation of babies.

2. Extending student training programs over 6 to 12 week periods (as against 3 weeks in our pilot project) would result in a stretched schedule of academic teaching demands from 5 mornings per week to 2 to 3 mornings (or afternoon) per week, enabling one child care specialist to cover a number of centers.

(5) Establishing a new direction in the form of group care for infants by combining day care for working mothers with day care for mothers who remain at home. On this basis, parent (and family) participation becomes possible for perhaps half the families in day care, providing a dual service of professionally guided experience for parents in handling children, along with raising adult-child caregiving ratios to adequate levels. Not the least of the advantages of this approach is to enrich the communication and coordination of childrearing methods between day care and home, a point which will be discussed further below.

Issue No. 2 - Staff Rotation vs Children's Needs for Stability of Adult-Child Relations

The practice in Metro day care staffing systems of frequently rotating staff runs directly counter to research evidence and prevailing recommendations of child development authorities that stable and close relations with a few adults is important for the basic personality development of children in the early years.

Problem:

The practice of staff rotation in day care is apparently based on three points: (1) A centralized system of controlling staff allocation to fill vacancies throughout a network of day care centers where need is most pressing; (2) providing staff with continuing experience with all age groups, even within a center; (3) promoting staff to vacancies at the next higher level wherever they occur.

There is much evidence and prevailing belief strongly supports the value of maintaining infant attachment relations with few adults. During the critical first two years of life many authorities are concerned over any separations that may jeopardize strong attachment relations with the mother

(Maccoby and Masters, 1970). In group day care settings strong bonds with the mother are not necessarily threatened, but only shared with other adults through much of every weekday. Our recent three-year demonstration program with Canadian Mothercraft Society (Fowler, 1972a: Fowler, et al, 1971) suggests that relations with the mother may even be enhanced when the child attends a full, well-organized day care program. In that program, the quality of emotional care and cognitive stimulation was perhaps exceptional. Nevertheless, multiple caretaking relations by students were balanced by the fact that students were in attendance at the day care center over an entire year and became closely attached to all of the children, despite some rotation in their schedules among the different age groups. Moreover, there was a regular permanent staff in attendance for each of the age groups.

What has been our experience in the Woodbine Center over the first year? The Metro day care authorities have agreed and made considerable effort over the year to maintain some stability of staff assignments in the infant group (6 - 18 months). Staff Rotation Rates are shown in the following Table 3.

Table 3

Woodbine Staff Rotation: Babies and Toddlers

January - May, 1972

	Number of Positions	Total Number of Staff Assigned	Turnover Rate
Babies	5[a]	7[a]	.71
Toddlers	2	7[b]	.28

[a] From January - April there were 6 staff assigned to babies. The 6th person was from Project 500 and was never considered "permanent".

[b] One person was from Project 500 from January - March. For two weeks in May - a Summer '72 staff was also there.

Three of the infant staff, including the supervisor, remained with the baby group throughout almost the entire year. On the other hand, the rotation of the remaining three teachers (one position was not assigned until January, 1972) has been higher, making a moderate rate overall (.71). In the toddler group, in contrast, the understaffing has not only been serious but the rotation has been excessive (.28). Starting this spring the Woodbine day care supervisor, Ms. Dallas, has made efforts to stabilize toddler staff assignments within the center. This effort has helped program continuity and the children emotionally. It is clear, however, that a certain portion of the difficulties described under Issue No. 1 are attributable to the high staff rotation, at least in the toddler group.

Perspectives:

In a period of rapid growth in day care demands and center establishment, there will no doubt continue to be pressures for rotation of staff to fill the assignments for newly established centers, and staff resignations and illness will always be a source of difficulty. There are alternative ways of fulfilling demands, however, that would threaten less the viability of programs and children's developmental needs (at all centers). The rotation pattern at the toddler level is intolerable and the pattern in the infant group, while acceptable, could be better planned to take account of program needs and advance planning of the local center staff (and at Woodbine, the research staff) through consultation.

There are, moreover, alternative incentive systems to encourage staff to stay in given roles for longer periods. What has grown up as administrative practice, in other words, should perhaps be thoroughly analyzed with respect to how well it meets children's needs. Assignments, for example, might be made for minimum periods (e.g., 6 months) with promotion contingent upon completion of a necessary time span.

In this same context, despite the very high cooperation found between day care and research staff, there are serious problems inherent in the research group trying to conduct inservice training and operate a project without either advance knowledge or any degree of decision-making powers in day care staff selection. Joint planning and anticipation of staff assignments at Woodbine Day Care Center could go far toward resolving this question of balancing children's needs with staff assignments, not only for Woodbine, especially in the toddler group and eventually the older age groups, but with respect to developing a smoother operating system throughout the Metro day care network.

Issue No. 3 - Inservice Training of Infant-Child Care Staff

In any welfare and educational field, continuous inservice training is an essential form of insurance for maintaining and improving program quality - especially in periods of rapid change.

Problem:

At mid-year an inservice training program for infant day care staff to operate throughout the Metro Day Care System was proposed to the Metro Department of Social Services (Fowler, 1972b). This was turned down, apparently because of cost factors. Among other things, the problem of lack of staff time for planning and preparation is stressed, but the plan also addresses itself to the major need of insuring that all newly established infant care centers throughout Metro are staffed with teachers well prepared in the many recent developments in the field regarding the psychological and educational needs of infants.

Over the year, the inservice training program in operation at Woodbine, while extensive and on the whole meeting excellent cooperation between the day care and research staffs, falls short in two ways: (1) day care staff lack adequate planning time, as discussed under Issue No. 1. The special needs

for extensive discussions and involvement of staff in designing and preparing programs is obviously particularly crucial in a research program. Given the necessity of elaborate program development in research, the Woodbine day care staff is greatly handicapped and, in effect, being asked to carry out two tasks simultaneously, i.e., child care and program development. In these circumstances, there is a constant danger of too great a work load and of staff feeling imposed upon by the constant bombardment from the research staff because they have so little free time to think, plan and initiate, and develop ideas themselves.

(2) The second limitation is that new centers are in the process of being established throughout Metro with staff, many of whom enjoy no opportunity for the inservice training they need to acquire familiarity with contemporary concepts. These new staff are confined to a brief visit to Woodbine, a few discussions with the Woodbine research and day care staff, and access to the new guides as they are completed (for example, guides on Physical Care Routines have already been distributed). These experiences can hardly be considered the equivalent of Inservice Training.

Perspectives:

In the absence of specific information on actual costs, we can only comment that day care should not operate in a manner that jeopardizes children's development. At an historical period when the demand for infant teachers greatly exceeds the supply and knowledge and methods of early childhood care and education have recently been and are continuing to undergo fundamental changes, inservice training of infant-preschool day care staff would seem to be a priority demand, not a luxury.

It is true that new infant centers are being partially staffed by drawing staff already exposed to considerable periods of inservice training at Woodbine. But no overall plan is evident and the Woodbine research staff

has been neither consulted nor their resources used in any systematic fashion. In light of the importance of this issue, possibly some equitable arrangement might be worked out through joint planning of the Metro day care administration and the Woodbine research staff, in which a general Inservice Training system could be set up at minimum cost - possibly, for example, supporting it in part through instituting a Family Life Education system with high school students.

Issue No. 4 - Conflicting Practices between Home and Day Care

Day care staff and various parents follow different practices in rearing children that result in conflicts for children, conflicts between parents and children and between day care staff and children in providing for children's needs and development.

Problem:

The philosophy and efforts of both the day care staff and the research group are directed toward putting into practice the best of contemporary ideas for children's development. The source of these efforts is both professional and research experience, on the one hand, and cultural and personal experience on the other. Parents are often equally and sometimes more dedicated to their children's welfare, though they usually lack a professional base. But whatever scientific knowledge may have to offer, the life history of every child will take a different course as his total experience accumulates and relations grow - something parents are in a position to know special things about that professionals are seldom in a position to acquire. Moreover, Toronto is today very much a multi-cultural society, represented in fact by many different cultures at Metro day care centers.

To resolve the many conflicting trends pushing and pulling children in different ways, the research project has assigned a full-time person, our parent-guidance worker, Ms. Marsha Cressy, to work in guiding parents, helping them to cope more effectively in their everyday problems with child-rearing and family living, as well as being a source of information on modern techniques. Ms. Cressy also serves as the chief liaison between home and day care, discussing problems of day care with parents and problems of home care to day care staff. Supplementing this parent guidance role are staff conferences regularly held at Woodbine Day Care Center in which information about a particular child's development, both at home and in day care, is freely discussed. Another line of activity are the occasional Parent Nights, held three times this year, and small group discussions of parents comparing problems of childrearing. These small conferences are encouraged by our parent-guidance worker.

These practices introduced are, however, to bring staff and parent into close and continuing proximity in decision-making. Something is needed beyond the formal research arrangements and informal but too fleeting day-to-day contact of parent and staff as the parents deliver and call for their child.

Perspectives:

What appears necessary in the long run is more direct and continuing parent participation in program planning and day care methods as regular policy and practice in day care everywhere. Without parent involvement and participation in policy-making there can easily be and often is a continuing value conflict between home and day care, magnified by the diversity of cultures represented in the Toronto community. We have too long seen the alienation children suffer from the monumental segregation between schools and home. We must never allow such a system of destructive barriers to take root in the social institutions caring for young

children. Formal, agency institutions of day care, whether public or private must be intimately allied and interdependent with the community through the family.

Since our parent constituency is mainly working mothers, many families will always find it difficult to find time and arrangements needed to meet regularly with day care staff. Much of their apparent difficulty, however, is probably mainly due to timidity and awe in the face of the formal institution of public day care. Families of essentially lower middle and working class socio-economic status are not accustomed to the opportunity to present their case and participate jointly in policy-making. They are nevertheless the group who need this experience most, among other things, especially to further the development of their children.

Some formal plan needs to be developed and instituted, such as establishing a policy and program committee for each center for parents would meet jointly with Metro day care staffs at the local level to decide upon questions of practice and method in the children's development. Such a framework, far from eliminating the parent guidance and staff conference methods now in practice at Woodbine, should make wider, and regular use of these practices as resources to aid in program planning of the joint day care staff-parent leadership group. Parent participation could be upon a representative basis, that is, for example, a designated group of parents selected by elective means would represent the broad parent body on a term rotational basis. No doubt there would always be some parents more interested and capable in representing other parents, but it would be important to make efforts to involve as varied and wide a group of parents as possible. In essence the plan would tend to

(1) reduce children's conflicts

(2) enhance relations between staff and home

(3) facilitate sharing of information of mutual value from home to day care as well as day care to home.

The traditions of culture and family personal styles can perhaps live in harmony with science and professional experience.

Finally, not the least of the benefits to be derived from this joint parent day care staff policy-making organization would be the likely integration of community services for children and family benefit. Such a policy group should undertake to coordinate information and services available in the various government and community agencies to fulfill family needs. In current practice, parents are beset and frustrated on every side by the need to travel to many agencies, each following different conflicting practices, to resolve financial and social conflicts in their family situation. We must bring together the personal and informal qualities of the home to temper the sometimes over-organization of formal institutions especially where the welfare of little children is concerned.

Issue No. 5 - Quantity and Quality of Physical Space

Space in day care centers must be varied in kind as well as adequate in quantity to permit development of a quality program.

Problem:

At the Woodbine Center, and in fact quite frequently in day care centers in Toronto and elsewhere, space needs are grossly underestimated. The building for the Woodbine Center was selected and remodelled for use as a day care center prior to setting up the collaborative arrangement with the research investigation. Even so, in many respects the space available at Woodbine is extremely tight for the operation of an ordinary program. Play space seldom exceeds the basic minimum level of 30 sq. ft. per child (Dept. of Social and Family Services, Ontario, 1968), although 35 sq. ft. is the basic minimum for most areas and 50 is recommended (Stevenson and Fitzgerald, 1971; CWLA, 1966). Hallways are narrow,

and closets and other storage space is limited. For example, high chairs and feeding tables for the infants must be kept in one of the play activity rooms further cutting play space, and baby carriages and other items occupy much of the only extra room available. The staff lounge, comfortable for no more than three or four people, must regularly accommodate double the number, and the kitchen staff eats at a sideboard in a narrow passageway leading to the kitchen. Such arrangements are too often typical of day care centers, either publicly or privately operated, unless in exceptional laboratory school settings.

The harmful impediment to program development and damage to children's needs is obvious. Whether or not research is involved, centers require certain minimal levels and types of space:

(1) Playroom areas must be large enough to accommodate furniture of different kinds, shelves, tables, water-play and creative play areas, etc. Space is also needed in playrooms for adults to observe without intruding upon the children's play and staff supervision. Smaller space means high social density and increased conflict and tension for both children and staff.

(2) Gross motor play areas in particular must be large enough to accommodate a variety of wheel toys, building blocks and climbing apparatus.

(3) There should be definite arrangements for dividing play areas, either by provision for a number of small separate rooms for specialized activities, or by movable wall partitions. In particular, it should be possible to separate gross motor play and specialized quiet play activities from the regular course of socio-dramatic and construction play. At Woodbine there is a separate small room for specialized activities for the baby group (16 - 18 months age group) and for all groups to make use of a large playroom in the church basement. The latter is both inconvenient as to access and distance, and bare, dark and poorly equipped, since there is no place to store and little provision for equipment needed for gross motor activities.

The babies are typically crowded into a miniature area for their gross motor play.

(4) Sleep rooms, particularly for the infants, although separated are small and some minimal distances between cribs of less than two feet tend to disturb children's sleeping patterns.

(5) The playground is perhaps adequate using staggered shifts for different age groups. But space is not only limited, the landscaping is poor, climbing apparatuses, swings and spring horses are all placed over asphalt creating a constant danger to children from falls on hard surfaces. The only soft ground area, where the sandbox is now placed, is located in the shade much of the year and limited in size.

(6) There is only one additional small office available for discussion area, observation and testing of children, specialized activities, etc. The office is now assigned to the nurse and in fact occupied much of the time by baby carriages as indicated above.

(7) Because of the bare minimum space in the playrooms, such things as toilet training close to the play area of the children is difficult to implement, despite its value for young children who are learning to anticipate needs. Similarly, there is no provision for a sink area for water play and messy creative play, etc.

(8) All of these things, of course, seriously erode the operation of the research investigation. These things, so necessary for the effective operation of an ordinary day care program, are indispensable for the multiple observations, program and testing activities that are the heart of a research project. Teachers as well as research staff need a place (as well as a time) for observing, recording, assembling and preparing materials to run programs.

Perspectives:

It is hard to imagine what could be done at this point to improve space conditions at Woodbine Day Care Center, desperately as this needs to be done. The building is of limited size and probably could not be expanded, except at very considerable cost. Make-do arrangements have been and are continuing to be applied. For example, consideration is being given to the installation of additional shelf space in the playrooms at adult levels for easy staff access to program materials or, for example, for the placement of video recording equipment in the playroom. The problem is nevertheless a grave one and is definitely undermining the operation of the research project, as well as the day-to-day effectiveness of the day care program itself.

Consideration could be given, however, to two important improvements, one of which I understand is already under consideration, namely, needed re-design of the playground. Installation of a sink and running water in two or three of the playrooms, especially the toddler room, would be a decided improvement. Despite its distance, re-painting, providing additional lighting, bringing in additional indoor gross motor play equipment and making provision for its storage through negotiating arrangements with the church are very much needed to improve the quality of the children's gross motor play indoors.

Long-range consideration, however, could bring about a marked improvement in the quality of space allocation for day care elsewhere. There needs to be recognition that day care standards as presently written are bare minima and probably need considerable upgrading, as well as greater definition for types of space necessary (e.g., observation rooms, types of activity rooms, gross motor play space available). There also needs to be much closer communication and involvement of users in designing day care centers; day care staff themselves could make major contributions to design of livable and workable day care centers. Architects, engineers and administrators cannot be expected

to enjoy familiarity with the problems of program organization and children and staff needs in the same intimate and precise way that staff themselves can.

Because of their technical expertise with respect to program definition and child development, researchers too should be involved in the planning of day care centers before designs become fixed.

It is often argued that cost is a primary deterrent to realizing adequate space. While this is always an underlying consideration, how space is used is often at least as important as the amount available.

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APPENDIX A

Report on Parent Guidance

by Marsha Cressy

Child and Family Characteristics of Sample

The age and sex of the children and major characteristics of the families of the primary and secondary samples are listed in Table 1.

Table 1

Children and Family Characteristics of Primary and Secondary Samples

Primary Sample (N=7)	Sex	Age		Education		Marital Status	Ethnicity		Blishen Scale		Hollingshead	
		Mother	Father	Mother	Father		Mother	Father	Mother	Father	Mother	Father
A	F	25	26	11	15	M	Indian Guyana	Indian Guyana	Re-training	Student	IV[a]	II[a]
B	F	18	18	10	11	M	Can. Anglo-Sax.	Can. Anglo-Sax.	32	Student	IV	III[a]
C	F	28	24	10	19	U	Eng.	Am. Jewish	51.96	Student	IV	I[a]
D	M	24	25	11	14	M	Indian Guyana	Indian Guyana	Re-training	Student	IV[a]	II[a]
E	M	40	34	12	12	U	Black Guyana	Can. Anglo-Sax.	32	37.14	V	IV
F	M	18	20	10	9	M	Can. Anglo-Sax.	Can. Anglo-Sax.	44.20	32.14	IV	V
G	M	21	22	11	14	M	Can. Anglo-Sax.	Eng.	49.55	68.80	IV	II
Mean		24.85	24.14	10.71	13.42	71% M 29% U			41.94	46.02	4.14	2.71

Table 1 (cont'd)

condary mple N=9)	Sex	Age		Education		Marital Status	Ethnicity		Blishen Scale		Hollingshead	
		Mother	Father	Mother	Father		Mother	Father	Mother	Father	Mother	Father
H	F	25	30	12	13	U	Can. Anglo-Sax.	Can. Irish	47.12	45.48	IV	III
I	F	23	25	13	9	D	Scottish		45.48	unemploy.	III	IV
J	M	24	24	12	10	S	Can. Anglo-Sax.	Can. Latvian	51.96	unemploy.	IV	V
K	F	21	26	8	9 + 6	D	Can. Scotch & Eng.	Can. Irish & Eng.	39.66	40.68	IV	IV
L	M	22	37	10	10	U	Can. Anglo-Sax.	Can. Anglo-Sax.	45.48	46.95	IV	IV
M	M	23	31	12	8	U	Eng.	Can. Indian	39.66	27.17	IV	V
N	F	30	43	11	11+	U	Black Jamaic.	Black Jamaic.	26.78	45.48	V	IV
O	F	22	22	11	10+	U	Can. Anglo-Sax.	Can. Anglo-Sax.	32	unkown	IV	unknown
P	M	26	30	14	13 + 6	U	Eng.	Eng.	49.55	29.71	III	IV
Mean		24	38.28	11.44	10.33	0%M 66%U 22%D 11%S			41.96	39.24	3.88	4.25
Non-Sample Child												
Q	M	19	22	14	14	U	Can. Eng.-Ir.	Can.-Eng.	39.66	student	III	III

[a] socio-economic status projected from current educational goals.

[+] additional training

M - Married S - Separated
U - Unmarried D - Divorced

Parent Guidance

Visits

- contact was initiated by parent or parent worker by phone call and/or home visit of approximately 1 hour.
- informal contact at the day care center before or after parent's work-day for observation by worker or discussion about specific situations.
- two families were visited at hospitals during illnesses of their child.
- visits were in the evening or on weekends.

Table 2

PARENT GUIDANCE WORKER

HOME VISIT RECORD

September, 1971 - June, 1972

	No. of Infants	No. of Visits	No. of Months in Program	Mean Total Number of Visits	Mean Number of Months In Program	Mean Visits per Month per Family
Primary Infant Sample	7	35	43	5	6.17	.85
Secondary Infant Sample	5	33	45	6.6	9	.73
Secondary Toddler Sample	4	20	36	5	9	.56
Extra Non-Sample Infant	1	5	9	5	9	.56
Means	17	93	133	5.47	7.82	.69

Topics Discussed

- parents were interested in program content at the day care, but mainly focused on their own child's personal development.
- they sought advice in areas of physical caretaking routines, nutrition, discipline and toilet training, as well as their own personal problems.

- health was another concern. Information was given, and referrals were made regarding birth control and family planning, community health clinics, and private specialists.

- suggestions for creative and musical activities were given and demonstrated.

- language was emphasized with all topics.

- toy demonstrations, using toys brought specifically to the home and items found in the home, were given, as well as construction of homemade toys and "playdough" clay for which the worker provided raw materials.

- the worker found that in a number of families personal parental concerns put strains on parent-child relations and in some cases made family life dysfunctional. Time was spent with parents concerning housing, employment, education, retraining, non-medical use of drugs, legal difficulties, and budgeting income. Parents were encouraged to make use of community resources in the above areas and were given direction, support, and in some cases assistance in their efforts to deal with bureaucratic organizations.

- The worker found that the majority of single parents using the daycare had many strengths in terms of energy and motivation, enabling them to work long days at low paying, often unsatisfying jobs, transporting their child to and from daycare, managing households, and raising their children alone.

  Isolation from family (either by rejection or distance) and friends because of being a single parent seemed to be a growing concern among daycare parents which appears to be recognized by parents as their children move into the toddler stage.

- the parent guidance worker helped organize several small group gatherings of four to six single parents who discussed issues from occupation to Women's Rights and child-care, to plans for organizing summer extra-curricular recreational activities for daycare mothers and children.

- various visits were made to Single Parent's Association meetings, Daycare Forum in the Town Hall, etc.

- most parents dealt with, given direction, suggestions and emotional support, were able to act on their own problems.

- family relations was another important area. Entire families (fathers, grandparents, siblings) were included in conversations when possible, as well as boyfriends or adult room-mates having an active role with the child.

Special Activities

Toy and Book Library

- was set up with examples of well-constructed toys illustrating a variety of learning concepts. Parents and children were free to choose toys once a week. Difficulty arose because of the difficulty of carrying large toys on public transportation, and often parents with the greatest need for library use seldom used it on their own initiative. In these cases, the worker found it more appropriate to drop off and pick up library toys during home visits.

Parent's Night

- Three Parent's Nights were held this year - 80% attendance, giving parents, day care and research staff a chance to meet informally about the project as well as doing specific things like making homemade toys (materials supplied), or having group discussions about particular aspects of child rearing.

Written Material

- A "Guide to Homemade Toys" was prepared in consultation with the principal investigator and distributed to parents and staff at one of the Parent Nights.

- A number of pamphlets, obtained from the Public Health Department, have been distributed to parents on topics ranging from feeding and nutrition to discipline and birth control, as well as a list of community resources compiled by the worker.

Donations

- Donations were received from Salvation Army, and a neighbourhood clothing depot.

PROBLEMS OF FAMILIES

Finances

- very few mothers are receiving any support from the putative father.
- rents are high for flats or apartments.
- parents can't afford two-bedroom apartments so cribs in their room cause sleeping problems.
- most can't afford babysitters and extra streetcar tickets for recreational or social purposes.
- a few can't afford basic clothes for child (like warm snowsuits) or shoes when needed immediately.
- exploitation of low income working people. Minimum wages minus OHSIP, etc. is very little.
- retraining courses are often from late afternoon to evening and fees don't take into consideration possible needs for babysitters, distance travelled, or financial needs while seeking a job.

School

- no financial support is available to married couples with husbands willing to work part-time so both could attend high school. (There is support available if they separate.)

- although two families have used free Department of Education correspondence courses, it's difficult to work full-time and study too.

Illness

- high cost of medicine, OHSIP and OHSI, in cases of low income working people whereas welfare cases are fully subsidized!

- mothers absence from work due to caring for an ill child threatens her job.

- inadequate number of visiting homemakers to give immediate care to ill child in such cases.

General Problems

- several times persons, particularly of non-Anglo-Saxon origin, were submitted to rudeness and red tape, when dealing with bureaucratic agencies.

- authority conflicts for children when grandparents or other older relatives live in the home.

- lack of relaxed time with child for guided learning or normal routines due to long hours at daycare, child's tired state after being at daycare 8-10 hours a day, parents feelings about leaving child, and short time available between homecoming, approximately 6-6:30 p.m., and child's bedtime (7:30-8 p.m.)

- number of moves made by parents due to unsatisfactory accommodations. 7/17 families moved at least once during the project. This affected child's behavior and feelings of security, if the mother reacted negatively toward the move. If not, the child seemed to adjust well.

Parent-Staff Relations

Parents and staff in general have an excellent on-going relationship. Individuals appear to feel free to discuss their child's development with particular daycare staff. Staff have been helpful in drawing out shy or apprehensive parents as well as coping with some inconsiderations of parents. There is, however, a need for staff to have some kind of in-service training for dealing with, or at least understanding cultural or economic patterns foreign to backgrounds of the teachers.

Case Studies have been somewhat helpful in picking up information about one child and discussing how to deal with particular aspects of behavior.

Municipal day care, because of admission requirements is not meeting needs of deprived children in the Metro area of Toronto, who will probably continue the cycle of poverty. In general, families using Woodbine Day Care are upwardly mobile, have at least an adequate sense of family life and responsibility toward their child's learning but given support and direction will be able to function at higher levels of consciousness.

It is hard to be consistent with mother, child and day care staff in terms of how to deal with types of behavior.

Cultural habits are different and it is hard for parents to understand attitudes and language picked up by their children from exposure to other children.

It is difficult to measure how situations a child is exposed to at home affect his behavior in terms of development. Some children are very stimulated in areas also emphasized at the day care (socio-dramatic play, birds, etc.). Oftentimes a mother's own sense of self-satisfaction seems to directly relate to a child's improvement of disposition, adjustment, or general well-being.

APPENDIX B

OUTLINE OF TOPICS FOR FAMILY LIFE EDUCATION PROGRAM

(1) Introduction to Day Care

(2) Physical Caretaking: Feeding and Eating

(3) Testing

(4) Free Play

(5) Testing

(6) Guided Learning and Toys

(7) Parent-Child Relationships

(8) Physical Caretaking: Diaper Changing and Toilet Training

(9) Social Relations

(10) Playground and Excursions

(11) Physical Caretaking: Dressing and Undressing

(12) Community Resources

(13) Teacher Evaluations

(14) Final Evaluation

APPENDIX C

Information Concept Project

by Nasim Khan

The information concept program was designed according to Fowler's (1965) conceptual framework and was first tried out on the researcher's nine-month-old baby, Nawed. The content area of birds was selected due to the cultural unfamiliarity in this domain, no apparent evidence of cultural differences between sexes in learning these concepts (as are apparent in learning about cars or dolls for example), and the ecological and aesthetic values of learning these concepts. Nawed was exposed to very short (2 - 10 minute) daily play sessions using these information concept-sequences (labelling general class type -- bird, major part of bird's body, functions of some of the major parts, labelling specific class types -- pigeon, stork, etc. with distinguishing features, and relational concepts and chains -- feet down, head up, feet attached to legs, attached to body, etc.) In five months he was able to achieve much more than the limits set for present curriculum in labelling class, specific class types, all visible parts of the body, functions of major features, and some relational concepts. Other curricula such as flowers, international flags and dresses, animals, cars, ships, airports, farms, etc. are being tried out.

Three curricula were designed for the project. The experimental curriculum (six birds), the near transfer control curricula - forms A & B, both comparable to the experimental curricula and designed in consultation with ornithologists, and two comparable far-transfer curricula (fish) - forms A & B. The three curricula were tried out on Junior (30 - 42 months) and Senior (43 - 54 months) groups at the Woodbine Center, and were found quite comparable. The staff of the baby and toddler groups were trained in the play-techniques through make-shift arrangements for periodic brief demonstration-

discussion sessions. However, the time available for training or for actual play-learning sessions with babies was extremely limited due to busy routines of long working days. The situation was worse in the toddler group, where the staff was very limited, and was continuously rotated to other groups. Thus, every five weeks or so new staff was to be trained. The material available for play sessions was extremely limited, although some was imported from United States, China and Pakistan. Design and production of custom-made material was beyond the resources of the project.

Modified Schaeffer and Aaronson rating scales on babies together with additional items on 'cooperation', 'creativity' and 'independent work', were administered to study motivational and socio-emotional variables. Regular tests of achievement in information concepts were administered. Scores on Griffiths ability tests, Bayley Infant Behavior Record and Learning Styles, Fowler's Developmental Profiles on Children, as well as data on home and family background and Schaeffer and Aaronson Maternal and Caldwell Home Stimulation Scores, on a sub-sample are being utilized for studying various dimensions of learning. Children and teachers were observed to obtain frequency counts and to isolate various teaching styles (e.g., creativity, individualization, reinforcement techniques, etc.) and interactions between teacher, learner, content and media variable. An outside observer was brought in to obtain reliability of instruments and to observe any positive or negative changes in children (on a small random sample).

As part of the problems of technology and red tape the use of computer was considerably delayed, and still is at a very low level. However, a system of monitoring is being designed which could be used as a model in future projects. The use of an interactive, time-sharing computer terminal could be highly beneficial in developmental monitoring over the long range of the project.

In spite of changes in staff, high load of routine duties, long gaps between play sessions for some children, all but the youngest three have made progress toward concept learning. Lack of evidence of learning a particular concept in some children may be due to the fact that many babies have yet to learn the mode of functioning in which they respond to and follow verbal instructions such as picking up or pointing at something when asked to. Some of them can even say the word "bird" when shown one, but simply do not point to or hand over a picture when requested to do so. Picking up 3-D models seems to be more interesting to babies than picking up pictures. Unfortunately very few useable models could be obtained. Even available live birds could not be used well due to extremely crowded space in playrooms.

An anonymous teacher critique of the entire concept learning project was obtained, which is one measure of the success of the program. The result of this evaluation is shown in Table 1.

APPENDIX C

TABLE 1: TEACHER'S EVALUATION OF THE INFORMATION CONCEPT LEARNING PROGRAM

The following results are based on 7 anonymous replies received at the time of this report. Replies are not received from two teachers who are out of the country, one in hospital care, and one of the two who moved to another day care center.

1. Do you consider the exposure of children to concept learning program beneficial

	highly beneficial	somewhat beneficial	not beneficial
- in general intellectual development of children?	6	1	1
- in their sensory motor development?	3	3	0
- in general learning to learn?	6	1	0
- in attending to learning material?	2	4	0
- in developing inquisitiveness among children?	3	3	0
- in improving their concentration?	2	5	0
- in developing creativity, trying to do things in many different ways?	2	3	2
- in encouraging perseverence?	3	3	1
- in developing positive social attitudes?	1	4	1
- in developing co-operativeness, sharing with others?	2	2	3
- in instilling independent work habits?	2	3	1
	less fatigue	no change	more fatigue
2. Have concept learning activities resulted in general easing or increase of fatigue among children?	2	5	0

3. What other positive or negative changes (intellectual, social, emotional) have you noticed in the children that you consider somehow related to the information concept learning experience? Please specify the change and rate it. If you like, specify any particular child.

	positive	no change	negative
- improvement in stranger fear	1	1	0
- co-operation, sharing	1	0	0
- level of language improvement	1	0	0
- level of understanding language	1	0	0
- at times, emotionally upsetting, pressure on some children due to structured program	0	0	1
- general/overall developmental change	1	0	0
- intellectual awareness in everyday experience	1	0	0

4. Please give a rating to the following aspects of the program. Also, considering the limitations of available time out of the heavy schedule of daily routine activities, what recommendations can you make to implement a concept learning project like this?

	very good	average	poor
- about written guidelines?	3	2	1
- about demonstrations/ discussions	3 4	0 0	2 1
- about progress recording and monitoring system?	3	3	1
- about supply and organization of learning material (pictures, models, live material, etc.)?	2	2	1
- about storage of material?	2	1	1

Suggestions:

	Number of Teachers Suggesting
- give more attention to guides throughout the program	1
- records on each child be available during session	1

Suggestions (cont'd)	Number of Teachers Suggesting
- initiation program with all staff needed	2
- more discussions/exchange of ideas/ information on progress of children	1
- more demonstrations	1
- too much recording for teachers due to other projects	1
- lack of storage space	1
- live birds needed	2
- more time with research staff - teacher - child working together	1
- better pictures and models (for variety and clarity of concepts)	2
- staff too busy to organize material	1

5. What aspects of the information concept learning program did you like or dislike? Specify the aspects and rate them as to your like or dislike.

	liked it very much	neither liked nor disliked	hated it
- working with small group/indiv.	2	0	1
- too much rushing/pressure for teachers	0	0	1
- repetition of same sessions with different group	0	0	1
- play sessions (although helpful for children)	0	1	0
- recording progress	1	0	1

6. Please add any other remarks you care to make.

	Number of Teachers Suggesting
Initial time wasted due to lack of material available.	1

APPENDIX D

Graduate Student Seminar Project

The Effects of Multi vs Single Colored Components on the Assembly of Nesting Cups[1]

Robert J. Bracewell

Several recent issues in education and psychology, such as the concern over cultural deprivation, the expansion of day care programs, and the evidence that cognitive development begins very early, have increased interest in the design of educational environments for young children. Probably because toys are an obvious part of a child's environment (and probably because they are readily marketable), much of this interest has centered on the design of toys that young children play with (e.g., Playtentials [Kenner Toys] endorsed by Burton L. White of Harvard University). Surprisingly, almost no research has been reported on the optimal design of such toys with respect to size, shape, color, texture, etc.

The study reported here was an attempt to collect some information on how the design of toys affects the way in which children use them. Obviously, the number of possible variables, ranging from simple physical characteristics to different ways of using the same toy,that could have been investigated was almost beyond count. In order to reduce this study to manageable size, a single but very general aspect of many toys was selected for investigation: the effects of different vs single colored components on the assembly of toys that can be put together to form a unit. Examples of such toys are nesting cups or containers and pyramid stacking toys. There are three possible effects of different colored components. They may facilitate, may interfere, or may have no effect on the assembly of the toy as measured against assembly of an identical toy with single colored components.

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1. This study was carried out as partial credit for course 3206X, Cognitive Development and Learning, taught by Dr. William Fowler.

Method

The toy chosen for use in this study was made of 5 plastic nesting cups, 1 1/2, 1 3/4, 2, 2 1/4, 2 1/2 inches in diameter. Two such toys were employed. In one the 5 cups were all blue; in the other the 5 cups were red, orange, white, blue and yellow.

Ten children, five boys and five girls, aged 1 : 11 to 3 : 2, attending the Woodbine Day Care Center participated as subjects.

Two different procedures for assembling the cups were employed. In the first, called ASSEMBLE, each child was shown the toy assembled, the toy was disassembled and laid out on the floor by E and then the child was asked to "put it back together the way it was before". The child manipulated the cups until they were assembled in a nested serial order or until he indicated termination of interest either verbally or by some action such as pushing the cups towards E or pushing them to one side. The second procedure, called INDICATE, was run after all the data from the ASSEMBLE procedure had been collected. The assembled toy was again shown to the child, E disassembled it and picking up the smallest cup asked the child to "point out which one this one goes into next". E placed the cup as the child had indicated and repeated the question with the nested assembly or pile held in his hand. When the child indicated an incorrect cup (see the definition of error below) the cup was placed and E asked "is that the right one?". This procedure was terminated in the same way as the ASSEMBLE procedure.

An experimental session consisted of two assembly trials each day, one with the multi-colored toy, the other with the single colored toy. In order to counterbalance color presentation order for each child, two sessions of each procedure were run on consecutive days.

The same two response measures were taken for each procedure. The first was the time taken to complete the trial. The second was the number of

errors the child made in assembling the toy. A manipulation was scored as an error only if (i) a larger cup or assembly was placed on a smaller, and (ii) a smaller cup was placed in a larger than necessary cup.

Results

For the ASSEMBLE procedure the multi vs single color variable yielded no significant differences on either response measures. The average duration of the first trial of each session, however, was longer than the second for 8 of the 9 children on which complete data was collected (Sign Test, $p=.018$).

For the INDICATE procedure the multi vs single color variable was significant on the error measure. The average number of errors made in assembling the multi colored toy exceeded the number made assembling the single colored for all 8 children from whom complete data was collected (Sign Test, $p=.004$). No other significant differences were found.

Discussion

Obviously, any interpretations of these limited results are quite tentative. A more rigorous procedure, employing more toys, more tasks and fully randomizing colors and spatial arrangements is required. Nevertheless, two or three things may be said.

First, the finding that the first trials in the experimental sessions with the ASSEMBLE procedure were longer in duration is probably artifactual. It might be expected that the children would spend more time playing with the cups on initial trials during the first days of testing because the situation was somewhat novel. Since the ASSEMBLE procedure was administered before the INDICATE procedure, the order of the procedures was confounded with the presumed novelty factor. Evidence that the difference in trial duration was not specific to the ASSEMBLE procedure is provided by data from seven of the children who participated in an additional two sessions of this procedure. Data from these additional sessions revealed no significant differences.

Second, and more important, I would like to make the assumption that the error score is a better measure than the trial duration score of the child's ability to assemble the toy since the error score represents more directly the child's manipulation of the components. Given this assumption, the error results could be interpreted as follows. No significant differences were obtained with the ASSEMBLE procedure because the children were manipulating the cups in a familiar way. All had had prior experience playing on their own with these toys at the day care center. A significant difference in error scores, in the form of interference with multi colored components, was obtained on a novel task, the INDICATE procedure, to which the children had never been exposed before. It appears then that different colored components can hinder children's performance on a novel task involving toys they are already quite familiar with in some other fashion. How general this effect is and, if general, what the reasons for the interference are, await further research.

APPENDIX D

Graduate Student Seminar Project

LANGUAGE LEARNING STRATEGIES IN THE YOUNG CHILD

by Frank McIntyre

Over the past ten years, theory and research into the mechanisms of growth of language in the child have issued in a now widely held view of the young child as an intensely active learner constantly searching the speech of those in his immediate environment for clues to the acceptable grammatical code whereby communication between mature persons is achieved. The immature child enters each speech situation intending to communicate something or to catch some other's intention; his immense task is to discover how intentions are realized in speech in his language community. Some evidence has been gathered suggesting that the child comes to the language learning task already equipped with a programmed strategy for arriving at his goal of successful communication with the mature persons in the community into which he happened to be thrown. The child is assumed to be born with a language acquisition propensity whereby he is disposed to arrive at a series of grammars successively more appropriate to the mature speech community. These grammars, empirically discoverable in all children, describe a hierarchical relationship, moving from the initially simple to the ever more complex in each closer approximation to the structure of adult grammatical forms.

In one recent study* a straightforward definition of grammatical complexity was used to test out the assumption that children exhibit a propensity to arrive at mature grammar by moving from the simple to the complex. It was assumed that speech performance involves the formation of an intended content and the transformation of that intention into a phonological format. According to the adopted theory, some intentions require more transformations than others in order to arrive at a properly interpretable phonological shape. For the purposes of this study, the grammatical complexity of a sentence was defined in terms of the number of transformations involved. A simple sentence (The car is on the floor) was arbitrarily assigned the value of 1 transformation; a sentence in negative or interrogative form is classed as involving 2 transformations; in negative and interrogative form, the sentence involves 3 transformations (Isn't the red car here?); and, in negative, interrogative and passive form (Can't trucks be hit by cars?), a sentence involves 4 transformations of intended content into phonological shape.

A simple imitation technique was employed with the experimenter presenting a series of sentences of equal length, but varying transformational complexity, to the children aged 2 to 4, the children being individually induced to repeat each model sentence immediately after it was spoken by the experimenter. It was found that, within the performance of individual subjects, there was a marked negative relationship between the number of transformations in a sentence and the subject's success in repeating the sentence; the greater the number of transformations in a sentence, the more likely a subject was to fail in his attempt at repetition. Although no significant relationship was discovered between age and overall success across subjects, it was assumed that the sample size was too small for such a discrimination in a group of children of apparently widely varying general intelligence.

Performance factors other than grammatcial complexity, such as memory limitations related to sentence length, were not available as explanations for the con-

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* F. McIntyre, Department of Special Education, O.I.S.E., 'Some Evidence for the Necessity of a Transformational Grammar as Part of a Performance Model of Language Acquisition and Language Use', unpublished.

sistency of results within subjects. The experimenter concluded that children develop toward mature language forms through a process of increasing the number of acceptable transformations they are able to simultaneously apply in giving phonological form to an intended communication.

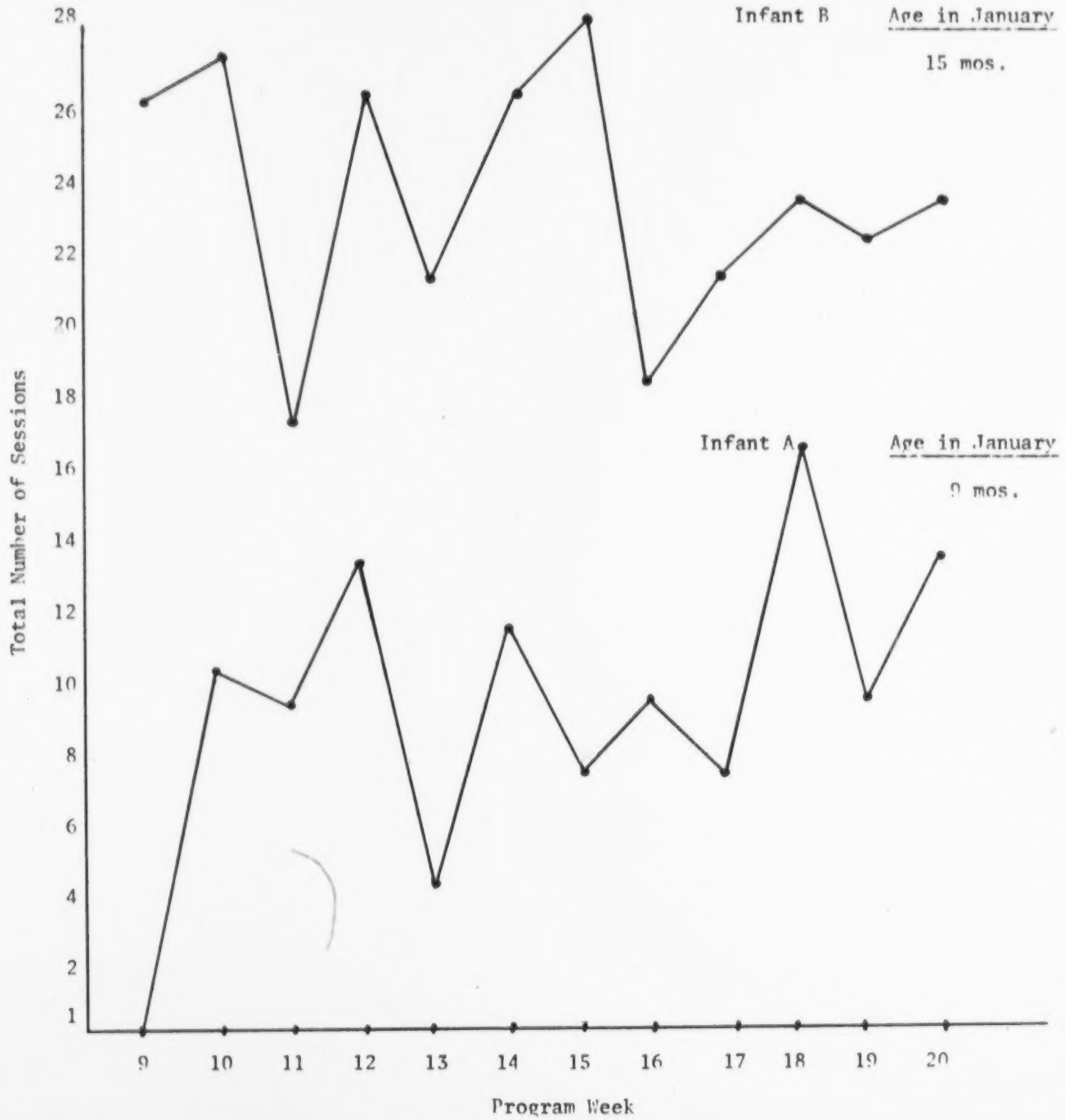
Two implications are immediately apparent from this line of research. First, a quickie test of language maturity for young children is hinted at; the test would involve inducing a child to repeat sentences of equal length but increasing complexity of transformational structure; children who are able to handle a greater number of simultaneous transformations are, of course, classed as further on in grammatical development than those able to handle fewer simultaneous transformations. Second, the implication can be made that exercises involving practise of various transformational combinations would make a useful language teaching strategy.

APPENDIX E

Sample Chart of Stimulation Frequency Curves for Two Infants

Receiving Contrasting a High and Low Frequency of Learning Sessions

January 24 - April 14



APPENDIX F

Developmental Age Groups and Teacher-Child Ratios[1]

		Predominant Developmental Characteristics						
Developmental Age Groups	Approximate Age Range (Months)	Physical Mobility	Infant's Participation in Physical Care	Scheduling	Language	Sensori-Motor Play	Socioemtional Relations: Adults	Socioemtional Relations: Peers	"On the Floor" Teacher-Child Ratios
Younger Infants	0 - 12	Minimal: None to crawling	Minimal development of interest in comfort and attention to routines	Highly individualized and flexible. High ratio of sleep, eating and other routines to waking and play	Comprehension; babbling but no speech	Highly circumscribed and focused in direction, distance, number of objects and relations. Interest in objects as ends in themselves rather than tools for a purpose (except hands as instruments)	Close and relative dependency on and interaction with one adult at a time	Responds to single infants for brief periods but largely through contiguity alone	1:2

1. From Table 1, Appendix A of the Final Report on a three-year project on infant care and education (Fowler, et al, 1971).

Younger Toddlers	13 - 21	Moderate Walking to beginning running	Beginning participation in single acts and attention to details of eating, dressing, toileting, etc.	Moderate stabilization in routines; long periods of play and wakefulness	Single words and holophrases; extended comprehension	Extension of area of focus beyond immediate environment; relating two (or more objects)--objects as instruments to other purposes. (e.g.,simple puzzles, form boards)	Relative autonomy in a familiar and friendly environment. Some adaptation to care and (individualized) guided learning in groups of 2 to 4 children but limited peer interaction	Some initiating of contact but interaction limited in quality and duration.	1:3

Older Toddlers	22 - 30+	Mastery: Walking, running, stair climbing, beginning wheel toys	Relative autonomy in certain routines--eating, toileting, stair climbing, getting into cot, etc.; some participation in all others--e.g. dressing.	Good adaptation to flexible routines of a group. Typically one nap per day.	Syntax and more elaborate comprehension	Interest in multiple patterns, object relations and sustains (brief) chains of means-end activities.	Multiple adaptation, some cooperative interaction and considerable autonomy in relations in (small) groups of all types and of both adults and peers.	Initiates and interacts socially with others functionally with some persistence